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<110> Shimizu, Nobuyoshi
Mizuno, Yoshikuni

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<141> 2004-02-12

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Met Ile Val Phe Val
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Arg Phe Asn Ser Ser His Gly Phe Pro Val Glu Val Asp Ser Asp Thr
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agc atc ttc cag ctc aag gag gtg gtt gct aag cga cag ggg gtt ccg      212
Ser Ile Phe Gln Leu Lys Glu Val Val Ala Lys Arg Gln Gly Val Pro
            25                  30                  35

gct gac cag ttg cgt gtg att ttc gca ggg aag gag ctg agg aat gac      260
Ala Asp Gln Leu Arg Val Ile Phe Ala Gly Lys Glu Leu Arg Asn Asp
        40                  45                  50

tgg act gtg cag aat tgt gac ctg gat cag cag agc att gtt cac att      308
Trp Thr Val Gln Asn Cys Asp Leu Asp Gln Gln Ser Ile Val His Ile
    55                  60                  65

gtg cag aga ccg tgg aga aaa ggt caa gaa atg aat gca act gga ggc      356
Val Gln Arg Pro Trp Arg Lys Gly Gln Glu Met Asn Ala Thr Gly Gly
70                  75                  80                  85

gac gac ccc aga aac gcg gcg gga ggc tgt gag cgg gag ccc cag agc      404
Asp Asp Pro Arg Asn Ala Ala Gly Gly Cys Glu Arg Glu Pro Gln Ser
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ttg act cgg gtg gac ctc agc agc tca gtc ctc cca gga gac tct gtg      452
Leu Thr Arg Val Asp Leu Ser Ser Ser Val Leu Pro Gly Asp Ser Val
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ggg ctg gct gtc att ctg cac act gac agc agg aag gac tca cca cca      500
Gly Leu Ala Val Ile Leu His Thr Asp Ser Arg Lys Asp Ser Pro Pro
        120                 125                 130

gct gga agt cca gca ggt aga tca atc tac aac agc ttt tat gtg tat      548
Ala Gly Ser Pro Ala Gly Arg Ser Ile Tyr Asn Ser Phe Tyr Val Tyr
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Cys Lys Gly Pro Cys Gln Arg Val Gln Pro Gly Lys Leu Arg Val Gln
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Cys Ser Thr Cys Arg Gln Ala Thr Leu Thr Leu Thr Gln Gly Pro Ser
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tgc tgg gat gat gtt tta att cca aac cgg atg agt ggt gaa tgc caa      692
Cys Trp Asp Asp Val Leu Ile Pro Asn Arg Met Ser Gly Glu Cys Gln
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tcc cca cac tgc cct ggg act agt gca gaa ttt ttc ttt aaa tgt gga      740
Ser Pro His Cys Pro Gly Thr Ser Ala Glu Phe Phe Phe Lys Cys Gly
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gca cac ccc acc tct gac aag gaa aca cca gta gct ttg cac ctg atc      788
Ala His Pro Thr Ser Asp Lys Glu Thr Pro Val Ala Leu His Leu Ile
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gca aca aat agt cgg aac atc act tgc att acg tgc aca gac gtc agg      836
Ala Thr Asn Ser Arg Asn Ile Thr Cys Ile Thr Cys Thr Asp Val Arg
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Asp Cys Phe His Leu Tyr Cys Val Thr Arg Leu Asn Asp Arg Gln Phe
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gtt cac gac cct caa ctt ggc tac tcc ctg cct tgt gtg gct ggc tgt      980
Val His Asp Pro Gln Leu Gly Tyr Ser Leu Pro Cys Val Ala Gly Cys
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ccc aac tcc ttg att aaa gag ctc cat cac ttc agg att ctg gga gaa     1028
Pro Asn Ser Leu Ile Lys Glu Leu His His Phe Arg Ile Leu Gly Glu
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Glu Gln Tyr Asn Arg Tyr Gln Gln Tyr Gly Ala Glu Glu Cys Val Leu
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cag atg ggg ggc gtg tta tgc ccc cgc cct ggc tgt gga gcg ggg ctg     1124
Gln Met Gly Gly Val Leu Cys Pro Arg Pro Gly Cys Gly Ala Gly Leu
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ctg ccg gag cct gac cag agg aaa gtc acc tgc gaa ggg ggc aat ggc     1172
Leu Pro Glu Pro Asp Gln Arg Lys Val Thr Cys Glu Gly Gly Asn Gly
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ctg ggc tgt ggg ttt gcc ttc tgc cgg gaa tgt aaa gaa gcg tac cat     1220
Leu Gly Cys Gly Phe Ala Phe Cys Arg Glu Cys Lys Glu Ala Tyr His
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gaa ggg gag tgc agt gcc gta ttt gaa gcc tca gga aca act act cag     1268
Glu Gly Glu Cys Ser Ala Val Phe Glu Ala Ser Gly Thr Thr Thr Gln
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gcc tac aga gtc gat gaa aga gcc gcc gag cag gct cgt tgg gaa gca     1316
Ala Tyr Arg Val Asp Glu Arg Ala Ala Glu Gln Ala Arg Trp Glu Ala
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gcc tcc aaa gaa acc atc aag aaa acc acc aag ccc tgt ccc cgc tgc     1364
Ala Ser Lys Glu Thr Ile Lys Lys Thr Thr Lys Pro Cys Pro Arg Cys
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cat gta cca gtg gaa aaa aat gga ggc tgc atg cac atg aag tgt ccg     1412
His Val Pro Val Glu Lys Asn Gly Gly Cys Met His Met Lys Cys Pro
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cag ccc cag tgc agg ctc gag tgg tgc tgg aac tgt ggc tgc gag tgg     1460
Gln Pro Gln Cys Arg Leu Glu Trp Cys Trp Asn Cys Gly Cys Glu Trp
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aac cgc gtc tgc atg ggg gac cac tgg ttc gac gtg tagccagggc          1506
Asn Arg Val Cys Met Gly Asp His Trp Phe Asp Val
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Glu Leu Arg Asn Asp Trp Thr Val Gln Asn Cys Asp Leu Asp Gln Gln
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Ser Ile Val His Ile Val Gln Arg Pro Trp Arg Lys Gly Gln Glu Met
65                  70                  75                  80

Asn Ala Thr Gly Gly Asp Asp Pro Arg Asn Ala Ala Gly Gly Cys Glu
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Arg Glu Pro Gln Ser Leu Thr Arg Val Asp Leu Ser Ser Ser Val Leu
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Pro Gly Asp Ser Val Gly Leu Ala Val Ile Leu His Thr Asp Ser Arg
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Lys Asp Ser Pro Pro Ala Gly Ser Pro Ala Gly Arg Ser Ile Tyr Asn
    130                 135                 140

Ser Phe Tyr Val Tyr Cys Lys Gly Pro Cys Gln Arg Val Gln Pro Gly
145                 150                 155                 160

Lys Leu Arg Val Gln Cys Ser Thr Cys Arg Gln Ala Thr Leu Thr Leu
                165                 170                 175

Thr Gln Gly Pro Ser Cys Trp Asp Asp Val Leu Ile Pro Asn Arg Met
            180                 185                 190

Ser Gly Glu Cys Gln Ser Pro His Cys Pro Gly Thr Ser Ala Glu Phe
        195                 200                 205

Phe Phe Lys Cys Gly Ala His Pro Thr Ser Asp Lys Glu Thr Pro Val
    210                 215                 220

Ala Leu His Leu Ile Ala Thr Asn Ser Arg Asn Ile Thr Cys Ile Thr
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Cys Thr Asp Val Arg Ser Pro Val Leu Val Phe Gln Cys Asn Ser Arg
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His Val Ile Cys Leu Asp Cys Phe His Leu Tyr Cys Val Thr Arg Leu
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Asn Asp Arg Gln Phe Val His Asp Pro Gln Leu Gly Tyr Ser Leu Pro
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Cys Val Ala Gly Cys Pro Asn Ser Leu Ile Lys Glu Leu His His Phe
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Arg Ile Leu Gly Glu Glu Gln Tyr Asn Arg Tyr Gln Gln Tyr Gly Ala
305                 310                 315                 320

Glu Glu Cys Val Leu Gln Met Gly Gly Val Leu Cys Pro Arg Pro Gly
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Cys Gly Ala Gly Leu Leu Pro Glu Pro Asp Gln Arg Lys Val Thr Cys
            340                 345                 350

Glu Gly Gly Asn Gly Leu Gly Cys Gly Phe Ala Phe Cys Arg Glu Cys
        355                 360                 365

Lys Glu Ala Tyr His Glu Gly Glu Cys Ser Ala Val Phe Glu Ala Ser
    370                 375                 380

Gly Thr Thr Thr Gln Ala Tyr Arg Val Asp Glu Arg Ala Ala Glu Gln
385                 390                 395                 400

Ala Arg Trp Glu Ala Ala Ser Lys Glu Thr Ile Lys Lys Thr Thr Lys
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Pro Cys Pro Arg Cys His Val Pro Val Glu Lys Asn Gly Gly Cys Met
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His Met Lys Cys Pro Gln Pro Gln Cys Arg Leu Glu Trp Cys Trp Asn
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                10                  15                  20

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Ser Ile Phe Gln Leu Lys Glu Val Val Ala Lys Arg Gln Gly Val Pro
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gct gac cag ttg cgt gtg att ttc gca ggg aag gag ctg agg aat gac       260
Ala Asp Gln Leu Arg Val Ile Phe Ala Gly Lys Glu Leu Arg Asn Asp
        40                  45                  50

tgg act gtg cag aat tgt gac ctg gat cag cag agc att gtt cac att       308
Trp Thr Val Gln Asn Cys Asp Leu Asp Gln Gln Ser Ile Val His Ile
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Val Gln Arg Pro Trp Arg Lys Gly Gln Glu Met Asn Ala Thr Gly Gly
70                  75                  80                  85

gac gac ccc aga aac gcg gcg gga ggc tgt gag cgg gag ccc cag agc       404
Asp Asp Pro Arg Asn Ala Ala Gly Gly Cys Glu Arg Glu Pro Gln Ser
                90                  95                  100

ttg act cgg gtg gac ctc agc agc tca gtc ctc cca gga gac tct gtg       452
Leu Thr Arg Val Asp Leu Ser Ser Ser Val Leu Pro Gly Asp Ser Val
            105                 110                 115

ggg ctg gct gtc att ctg cac act gac agc agg aag gac tca cca cca       500
Gly Leu Ala Val Ile Leu His Thr Asp Ser Arg Lys Asp Ser Pro Pro
        120                 125                 130

gct gga agt cca gca ggt aga tca atc tac aac agc ttt tat gtg tat       548
Ala Gly Ser Pro Ala Gly Arg Ser Ile Tyr Asn Ser Phe Tyr Val Tyr
    135                 140                 145

tgc aaa ggc ccc tgt caa aga gtg cag ccg gga aaa ctc agg gta cag       596
Cys Lys Gly Pro Cys Gln Arg Val Gln Pro Gly Lys Leu Arg Val Gln
150                 155                 160                 165

tgc agc acc tgc agg cag gca acg ctc acc ttg acc cag gaa ttt ttc       644
Cys Ser Thr Cys Arg Gln Ala Thr Leu Thr Leu Thr Gln Glu Phe Phe
                170                 175                 180

ttt aaa tgt gga gca cac ccc acc tct gac aag gaa aca cca gta gct       692
Phe Lys Cys Gly Ala His Pro Thr Ser Asp Lys Glu Thr Pro Val Ala
            185                 190                 195

ttg cac ctg atc gca aca aat agt cgg aac atc act tgc att acg tgc       740
Leu His Leu Ile Ala Thr Asn Ser Arg Asn Ile Thr Cys Ile Thr Cys
        200                 205                 210

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230                 235                 240                 245

gat cgg cag ttt gtt cac gac cct caa ctt ggc tac tcc ctg cct tgt      884
Asp Arg Gln Phe Val His Asp Pro Gln Leu Gly Tyr Ser Leu Pro Cys
                250                 255                 260

gtg gct ggc tgt ccc aac tcc ttg att aaa gag ctc cat cac ttc agg      932
Val Ala Gly Cys Pro Asn Ser Leu Ile Lys Glu Leu His His Phe Arg
            265                 270                 275

att ctg gga gaa gag cag tac aac cgg tac cag cag tat ggt gca gag      980
Ile Leu Gly Glu Glu Gln Tyr Asn Arg Tyr Gln Gln Tyr Gly Ala Glu
        280                 285                 290

gag tgt gtc ctg cag atg ggg ggc gtg tta tgc ccc cgc cct ggc tgt     1028
Glu Cys Val Leu Gln Met Gly Gly Val Leu Cys Pro Arg Pro Gly Cys
    295                 300                 305

gga gcg ggg ctg ctg ccg gag cct gac cag agg aaa gtc acc tgc gaa     1076
Gly Ala Gly Leu Leu Pro Glu Pro Asp Gln Arg Lys Val Thr Cys Glu
310                 315                 320                 325

ggg ggc aat ggc ctg ggc tgt ggg ttt gcc ttc tgc cgg gaa tgt aaa     1124
Gly Gly Asn Gly Leu Gly Cys Gly Phe Ala Phe Cys Arg Glu Cys Lys
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Glu Ala Tyr His Glu Gly Glu Cys Ser Ala Val Phe Glu Ala Ser Gly
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aca act act cag gcc tac aga gtc gat gaa aga gcc gcc gag cag gct     1220
Thr Thr Thr Gln Ala Tyr Arg Val Asp Glu Arg Ala Ala Glu Gln Ala
        360                 365                 370

cgt tgg gaa gca gcc tcc aaa gaa acc atc aag aaa acc acc aag ccc     1268
Arg Trp Glu Ala Ala Ser Lys Glu Thr Ile Lys Lys Thr Thr Lys Pro
    375                 380                 385

tgt ccc cgc tgc cat gta cca gtg gaa aaa aat gga ggc tgc atg cac     1316
Cys Pro Arg Cys His Val Pro Val Glu Lys Asn Gly Gly Cys Met His
390                 395                 400                 405

atg aag tgt ccg cag ccc cag tgc agg ctc gag tgg tgc tgg aac tgt     1364
Met Lys Cys Pro Gln Pro Gln Cys Arg Leu Glu Trp Cys Trp Asn Cys
                410                 415                 420

ggc tgc gag tgg aac cgc gtc tgc atg ggg gac cac tgg ttc gac gtg     1412
Gly Cys Glu Trp Asn Arg Val Cys Met Gly Asp His Trp Phe Asp Val
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        35                  40                  45

Glu Leu Arg Asn Asp Trp Thr Val Gln Asn Cys Asp Leu Asp Gln Gln
    50                  55                  60

Ser Ile Val His Ile Val Gln Arg Pro Trp Arg Lys Gly Gln Glu Met
65                  70                  75                  80

Asn Ala Thr Gly Gly Asp Asp Pro Arg Asn Ala Ala Gly Gly Cys Glu
                85                  90                  95

Arg Glu Pro Gln Ser Leu Thr Arg Val Asp Leu Ser Ser Ser Val Leu
            100                 105                 110

Pro Gly Asp Ser Val Gly Leu Ala Val Ile Leu His Thr Asp Ser Arg
        115                 120                 125

Lys Asp Ser Pro Pro Ala Gly Ser Pro Ala Gly Arg Ser Ile Tyr Asn
    130                 135                 140

Ser Phe Tyr Val Tyr Cys Lys Gly Pro Cys Gln Arg Val Gln Pro Gly
145                 150                 155                 160

Lys Leu Arg Val Gln Cys Ser Thr Cys Arg Gln Ala Thr Leu Thr Leu
                165                 170                 175

Thr Gln Glu Phe Phe Phe Lys Cys Gly Ala His Pro Thr Ser Asp Lys
            180                 185                 190

Glu Thr Pro Val Ala Leu His Leu Ile Ala Thr Asn Ser Arg Asn Ile
        195                 200                 205

Thr Cys Ile Thr Cys Thr Asp Val Arg Ser Pro Val Leu Val Phe Gln
    210                 215                 220

Cys Asn Ser Arg His Val Ile Cys Leu Asp Cys Phe His Leu Tyr Cys
225                 230                 235                 240

Val Thr Arg Leu Asn Asp Arg Gln Phe Val His Asp Pro Gln Leu Gly
                245                 250                 255

Tyr Ser Leu Pro Cys Val Ala Gly Cys Pro Asn Ser Leu Ile Lys Glu
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Leu His His Phe Arg Ile Leu Gly Glu Glu Gln Tyr Asn Arg Tyr Gln
275 280 285

Gln Tyr Gly Ala Glu Glu Cys Val Leu Gln Met Gly Gly Val Leu Cys
290 295 300

Pro Arg Pro Gly Cys Gly Ala Gly Leu Leu Pro Glu Pro Asp Gln Arg
305 310 315 320

Lys Val Thr Cys Glu Gly Gly Asn Gly Leu Gly Cys Gly Phe Ala Phe
325 330 335

Cys Arg Glu Cys Lys Glu Ala Tyr His Glu Gly Glu Cys Ser Ala Val
340 345 350

Phe Glu Ala Ser Gly Thr Thr Thr Gln Ala Tyr Arg Val Asp Glu Arg
355 360 365

Ala Ala Glu Gln Ala Arg Trp Glu Ala Ala Ser Lys Glu Thr Ile Lys
370 375 380

Lys Thr Thr Lys Pro Cys Pro Arg Cys His Val Pro Val Glu Lys Asn
385 390 395 400

Gly Gly Cys Met His Met Lys Cys Pro Gln Pro Gln Cys Arg Leu Glu
405 410 415

Trp Cys Trp Asn Cys Gly Cys Glu Trp Asn Arg Val Cys Met Gly Asp
420 425 430

His Trp Phe Asp Val
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<223> Xaa may be any combination of 2 amino acids

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<211> 20

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<210> 32

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<210> 33

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Val Glu Pro Ser Asp Thr Ile Glu Asn Val Lys Ala Lys Ile Gln Asp
20 25 30

Lys Glu Gly Ile Pro Pro Asp Gln Gln Arg Leu Ile Phe Ala Gly Lys
35 40 45

Gln Leu Glu Asp Gly Arg Thr Leu Ser Asp Tyr Asn Ile Gln Lys Glu
50 55 60

Ser Thr Leu His Leu Val Leu Arg Leu Arg Gly Gly
65 70 75

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Met Gln Ile Phe Val Lys Thr Leu Thr Gly Lys Thr Ile Thr Leu Glu
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Val Glu Ser Ser Asp Thr Ile Asp Asn Val Lys Ser Lys Ile Gln Asp
20 25 30

Lys Glu Gly Ile Pro Pro Asp Gln Gln Arg Leu Ile Phe Ala Gly Lys
35 40 45

Gln Leu Glu Asp Gly Arg Thr Leu Ser Asp Tyr Asn Ile Gln Lys Glu
50 55 60

Ser Thr Leu His Leu Val Leu Arg Leu Arg Gly Gly
65 70 75

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Val Glu Ser Ser Asp Thr Ile Asp Asn Val Lys Ala Lys Ile Gln Asp
20 25 30

Lys Glu Gly Ile Pro Pro Asp Gln Gln Arg Leu Ile Phe Ala Gly Lys
35 40 45

Gln Leu Glu Asp Gly Arg Thr Leu Ala Asp Tyr Asn Ile Gln Lys Glu
50 55 60

Ser Thr Leu His Leu Val Leu Arg Leu Arg Gly Gly
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1 5 10

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Gly Pro Ser Cys Trp Asp Asp Val Leu Ile
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Val His Leu Ala Gly Met Met Phe
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<210> 69

<211> 8

<212> PRT

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Val His Leu Ala Gly Met Met Phe
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<210> 70

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